

CACALIA RUGELIA: A NEW COMBINATION FOR A NORTH AMERICAN SENECTIONOID*

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The problematic taxon long-called *Senecio rugelia* (Shuttl. ex Chapman) A. Gray (Compositae) is a distinctive species occurring in coniferous associations along the higher ridges of the Great Smokies astride the North Carolina-Tennessee border. It is a tall, coarse herb with several conspicuous discoid heads and dull, dirty-white corollas. The species was introduced to science as *Rugelia nudicaulis* Shuttl. ex Chapman in 1860, but in 1883 Asa Gray transferred it to *Senecio*, where it has remained.

Many botanists have recognized the incongruity of including this entity in *Senecio*, but the morphological tolerances of *Senecio* have been usually treated as very wide, and so the matter has not been pursued. However, Greenman (1901) and Alexander (1937) noted the possible relationship to *Cacalia*.

The species referable to *Cacalia* have had their systematic woes, being variously regarded as constituting several genera, or as members of the single genus *Cacalia*, or as a part of *Senecio*. Compounding these difficulties has been a disagreement concerning the typification of the name *Cacalia*. A review of these matters is beyond the scope of this paper, but we are treating *Cacalia* in the expanded sense, and we accept *Cacalia hastata* L. as the generic type (Vuilleumier & Wood, 1969).

In general, *Cacalia* differs from *Senecio* by the two floral features of discoid heads and white to creamy corollas. Both are features which occur independently as evolutionary tendencies in other alliances within *Senecio*. In *Cacalia*, however, the two occur together, presumably defining a natural assemblage.

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Cacalia is here regarded as a derivative of *Senecio* section *Palmatinervii* of Mexico, a group of coarse herbs strongly resembling *Cacalia* in aspect. Nearly all species of the *Palmatinervii* for which chromosome counts are reported have $n=30$ (Gibson, 1969). *Cacalia* has $n=30$, and a reduction series of $n=28, 27, 26, 25$, and 20 (Ornduff et al., 1963, 1967). The species here offered as *Cacalia rugelia* has $n=28$, a number unreported for *Senecio* (Fedorov, 1969).

In a recent study of Mexican cacalioids, Pippen (1968) recognizes four genera, but he offers a table summarizing the distinctions between these "Cacalioid genera" and *Senecio* (table 2, p. 371). Incorporated into the table are the cacalioid features of discoid heads and white or creamy florets. The table also shows that the "Cacalioid genera" characteristically have deeply lobed disk corollas, a feature which we find in *Cacalia rugelia* as well. Furthermore, in Pippen's key the present species falls into the assemblage treated as the Mexican segregate-genus *Odontotrichum*, and it is morphologically compatible with that group. The floristic relationships between the Southern Appalachian region and some of the mountains of Mexico have been noted by other authors (e.g. Sharp, 1946).

In the light of the foregoing considerations, the following transfer is proposed:

Cacalia rugelia (Shuttl. ex Chapman) Barkley & Cronquist,
comb. nov.

Type: "Smoky Mountains, Tennessee. *Rugel, Buckley*."

Paratype: *Buckley*, NY!

Senecio rugelia A. Gray, Proc. Am. Acad. 19: 54. 1883.

Rugelia nudicaulis Shuttleworth ex Chapman, Fl. S. U. S.
246. 1860.

non *Cacalia nudicaulis* (Less.) O. Kuntze, 1891.

non *Senecio nudicaulis* Buck.-Ham. ex D. Don, 1825.

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